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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/674,438	10/01/2003	Shinpei Nomura	H9876.0075/P075	5663

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DICKSTEIN SHAPIRO LLP
1825 EYE STREET NW
Washington, DC 20006-5403

EXAMINER

BROOME, SAID A

ART UNIT	PAPER NUMBER
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2628

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/23/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/674,438

Applicant(s)

NOMURA, SHINPEI

Examiner

Said Broome

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 1/31/07.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 2, 9-11, 14-17, 20 and 21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 9-11, 14-17, 20 and 21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
- Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. This office action is in response to an amendment filed 1/31/2007.
2. Claim 1 has been amended by the applicant.
3. Claims 3-8, 12, 13, 18 and 19 have been cancelled by the applicant.
4. Claims 2, 9-11, 14-17, 20 and 21 are original.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 11, 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tabata (US Patent 6,088,006) in view of Tatsuzawa (US Patent 6,441,844), in further view of Aritake et al. (herein "Aritake", US Patent 5,872,590).

Regarding claims 1, 11, and 16, Tabata teaches stored object data of objects made of polygons having 3D coordinates, as described in column 2 lines 61-67, to be converting for view in a stereoscopic view by converting to parallax camera coordinate system data with their origins at parallax cameras for left and right eyes in column 2 lines 64-67 – column 3 lines 1-10 ("*...initial position data of the plurality of objects in a three-dimensional coordinate system...first rendering means for generating...first two-dimensional image data obtained by rendering the plurality of objects in the three-dimensional coordinate system from the first*

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viewpoint, second rendering means for generating...second two-dimensional image data obtained by rendering the plurality of objects in the three-dimensional coordinate system from the second viewpoint...”), where it is described that the virtual three-dimensional objects are rendered from one of a pair of two-dimensional viewpoints for stereoscopic viewing from each eye, therefore the virtual three-dimensional polygons are converted by the rendering means to a two-dimensional parallax coordinate system for the right and left eyes. Tabata also teaches the storage of the parallax coordinate system object data for the left eye and the right eye in a video memory in column 12 lines 8-17, and is illustrated in Figure 7 as step 62 and 63 respectively. Tabata also teaches what is disclosed in the preamble of claim 1 in Figure 7, claim 11 in Figure 6, and claim 16 in Figure 6 as element 14, where a method, apparatus and storage medium for storing a program run in an apparatus for generating stereoscopic images are illustrated respectively. However, Tabata fails to teach the conversion of stored model object data to be displayed in a planar view to reference camera coordinate system data with its origin at a reference camera, the storage of the reference camera coordinate system data for the left and right eye and the synthesizing of the stereoscopic and planar image data. Tatsuzawa teaches the conversion of stored model object data to a reference coordinate system data to be displayed in a planar view with its origin at a reference camera in column 9 lines 21-23 where it is described that a three-dimensional object in a three-dimensional space is converted to a two-dimensional or planar view from a front video camera, or reference camera, as shown in Figure 1 as element 18M. Therefore the converted object data of the three-dimensional object 12 of Figure 1 results in the conversion of the pixels and coordinates of the object from its three-dimensional space to a two-dimensional view for display, as described in column 4 lines 33-34. It would have been

obvious to one of ordinary skill in the art at the time of invention to modify the teachings of Tabata with Tatsuzawa because this combination would provide accurate images to a user, where undesired distortions in the images that may occur when the user resides outside the required visual range, as taught by Tabata in column 2 lines 17-18 & 30-34, are prevented by switching the view from a stereoscopic view to a planar view imaged from a reference camera, as taught by Tatsuzawa in column 2 lines 8-9, thereby maintaining the stereoscopic effect. Tatsuzawa also teaches drawing image data collected from a reference camera, in column 4 lines 34-38, and is also shown in Figure 7 shown as element M, where the obtained image is generated by the solid-picture generation unit in combination with the obtained of the left and right images. Tatsuzawa teaches the synthesizing of the image data for the right and left eyes drawn, or stored, in the video memory and displaying the mixed stereoscopic and planar objects in column 2 lines 48-59 where it is described that the front video signal from the reference camera, which displays the planar or two-dimensional view of the image, and the right and left stereoscopic views of the image are simultaneously projected on a monitor. Tabata and Tatsuzawa fail to teach that the parallax angles for the left and right eyes are predetermined. However, Aritake teaches in column 10 lines 62-64 that the horizontal distance between the parallax cameras, which each contain equivalent angles of parallax, is predetermined. Therefore the parallax angles are also predetermined because the parallax angles contain a direct relationship to the distance between the cameras wherein the angles of each camera must be set to a certain equivalent angle based on the distance between the cameras in order to maintain the stereoscopic effect, therefore by predetermining the distance between the cameras, the angles at which the cameras are needed to provide a stereoscopic view, are predetermined as well. It would have been obvious to one of

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ordinary skill in the art at the time of invention to combine the teachings of Tabata, Tatsuzawa, and Aritake, because this combination would provide accurate stereoscopic imaging of polygon objects without undesired artifacts or distorted images when the distance between the object and the observer changes as described in column 2 lines 50-60 of Tabata, in which objects are clearly displayed without distortion if the user resides outside the stereoscopic range of the parallax cameras, as described in column 2 lines 9-47 of Tatsuzawa, using an imaging apparatus that does not require specific optical system or glasses as described in column 2 lines 36-41 of Aritake.

Tabata and Tatsuzawa teach the limitations of claims 2 and 17 except for the viewing of object in a planar view outside of a stereoscopic viewable range of the stereoscopic display device in a 3D coordinate space. Aritake teaches that there is a 2D observing region, or planar view, which lies out of a 3D observing region, or 3D coordinate space, in which object data may be displayed in 2D in column 10 lines 17-24 and is also illustrated in Figure 7 as element 36. It would have been obvious to one of ordinary skill in the art to combine the teachings of Tabata, Tatsuzawa and Aritake because this combination produces a planar view of the object data which lies outside of a stereoscopic viewable range of a stereoscopic display device therefore allowing observers outside of the 3D observing region of the stereoscopic display device to view 2D viewpoints of the object data without distortion.

Claims 9, 10, 14, 15, 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tabata, Tatsuzawa and Aritake, and further in view of Hoglin (US Patent 5,949,477).

Tabata, Tatsuzawa and Aritake teach the limitations of claims 9, 10, 15, 20 and 21 (see Tabata, column 10 lines 6-9) where it is described that an operator inputs the angle of the

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parallax camera for the left and right eye. However, this combination of prior art fails to teach that the angles are adjustable in real time and are continuously and gradually varied as a result of the adjustment. Hoglin teaches that the angles of the parallax cameras are adjustable at all times by an observer in column 4 lines 45-47, therefore the angles are also continuously and gradually varied as a result of the adjustment by operations of the observer, as described in column 4 lines 29-45. It would have been obvious to combine the teachings of Tabata, Tatsuzawa and Aritake with Hoglin because this combination would provide for the continuous adjustment of parallax camera angles in real time depending on user input that would allow the adjustment of parallax camera during generation of stereoscopic images, resulting in an improved display.

Regarding claim 14, Tabata teaches the geometric unit, which comprises the stereoscopic image generating apparatus illustrated in Figure 6 as element 11, and the input unit also illustrated in Figure 6 as element 12. Tabata, Tatsuzawa and Aritake fail to teach the adjustment of the camera parallax angles in real time by the geometric unit from signal input from the input unit. Hoglin teaches that the angles of the parallax cameras are adjustable at all times by an observer in column 4 lines 45-47. Therefore it would have been obvious to one of ordinary skill in the art to combine the teachings of Tabata, Tatsuzawa and Aritake with Hoglin because this combination would provide an adjustment of parallax camera angles in real time by a user that enables an improvement in the generated stereoscopic images due to the ability of the observer to adjust the parallax angles while viewing the image.

Response to Arguments

Applicant's arguments with respect to claims 1, 2, 9-11, 14-17, 20 and 21 have been considered but are moot in view of the new ground(s) of rejection.

The applicant argues that the references Tabata in view of Tatsuzawa in further view of Aritake used in the 35 U.S.C. 103(a) rejection of claims 1, 2, 11, 16 and 17 do not teach conversion of stored model object data of objects, made of polygons having 3D coordinates, to be viewed in a planar view to reference coordinate system data to be displayed in a planar view with its origin at a reference camera and converting stored model object data of objects, made of polygons having 3D coordinates, to be viewed in a stereoscopic view to parallax camera coordinate system data for right and left eyes respectively with their origins at parallax cameras for right and left eyes having predetermined parallax angles. However, in response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). The examiner maintains the rejection because Tabata teaches stored object data of objects made of polygons having 3D coordinates, as described in column 2 lines 61-67, to be converting for view in a stereoscopic view by converting to parallax camera coordinate system data with their origins at parallax cameras for left and right eyes in column 3 lines 62-67 – column 4 lines 1-5. Though Tatsuzawa does not teach converting object data of objects made of polygons, it would have been obvious to one of ordinary skill in the art at the time of invention to provide a reference camera to display any object data converted to a planar view because the object data is just image data, regardless of whether that object data is a digital

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image of a real object, or an image of a three-dimensional polygon object. Therefore the object data itself is simply image data, regardless of the medium used to acquire it and could be implemented in a virtual or real world environment because the cameras of Tabata are used to realistically simulate images of real world objects, therefore any benefit of the image capture of real world camera of Tatsuzawa may be applied to computer generated cameras of Tabata to obtain the same benefit.

The applicant also argues that the references Tatsuzawa and Aritake used in the 35 U.S.C. 103(a) rejection of claims 1, 2, 11, 16 and 17, and Hoglin used in the 35 U.S.C. 103(a) rejection of claims 9, 10, 14, 15, 20 and 21 fail to disclose parallax cameras that are virtual. However, In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., on page 9 3rd paragraph lines 4-5, on page 10 4th paragraph lines 3-4 and on page 12 3rd paragraph lines 3-5, respectively "...parallax cameras that are virtual...") are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Said Broome whose telephone number is (571)272-2931. The examiner can normally be reached on 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ulka Chauhan can be reached on (571)272-7782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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S. Broome *SB*
4/13/07

U Chauhan
Ulka Chauhan
Supervisory Patent Examiner